

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-10 (canceled)

11. (currently amended) A locking device comprising:
- (a) a locking mechanism for locking and unlocking movement of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;
 - (d) a processor configured to determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device;
 - (e) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to said fingerprint match determination by said processor; and
 - (f) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, said portable key unit comprising one of the group consisting of: (1) said sensor, said semiconductor memory device, and said processor but not said control unit, and wherein said portable key unit is in communication with said control unit via unidirectional wireless communication from the portable key unit to the control unit, ~~(2) said sensor and said processor but not said semiconductor memory device and not said control unit, and wherein said portable key unit is in communication with said semiconductor memory device and said control unit via wireless communication, (3) said processor but not said sensor, not said semiconductor memory device, and not said control unit, and wherein said portable key unit is in communication with said sensor, said semiconductor memory device, and~~

~~said control unit via wireless communication~~, and (2) (4) said sensor and said semiconductor memory device but not said processor and not said control unit, and wherein said portable key unit is in communication with said processor ~~and said control unit~~ via unidirectional wireless communication from the portable key unit to said processor.

12. (currently amended) The locking device of claim 11 wherein said portable key unit comprises said sensor, said processor, and said semiconductor memory device but not said control unit, and wherein said portable key unit is in communication with said control unit via unidirectional wireless communication from the portable key unit to the control unit.

13. (currently amended) A locking device comprising:
(a) a locking mechanism for locking and unlocking movement of an object;
(b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
(c) a semiconductor memory device for storing registered fingerprint data;
(d) a processor configured to determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device;
(e) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to said fingerprint match determination by said processor; and
(f) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, said portable key unit comprising said sensor, said semiconductor memory device, and said processor but not said control unit, and ~~The locking device of claim 12~~ wherein said portable key unit is configured to wirelessly communicate with said control unit via magnetic coupling.

14. (previously presented) The locking device of claim 12 wherein said portable key unit is a card.

15. (canceled)
16. (previously presented) A locking device comprising:
- (a) a locking mechanism for locking and unlocking movement of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;
 - (d) a first processor configured to determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device;
 - (e) a second processor in communication with said first processor and said semiconductor memory device, said second processor being configured to (1) create fingerprint data from the fingerprint pattern of an authorized person detected by said fingerprint sensor and (2) register said authorized person by storing said created fingerprint data in said semiconductor memory device;
 - (f) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to said fingerprint match determination by said processor; and
 - (g) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, said portable key unit comprising either (i) said first processor but not said second processor, wherein said portable key unit is configured to wirelessly communicate with said control unit and said second processor, or (ii) said second processor but not said first processor, wherein said portable key unit is configured to wirelessly communicate with said first processor.
17. (currently amended) ~~The locking device of claim 11~~ A locking device comprising:
- (a) a locking mechanism for locking and unlocking movement of an object;

(b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
(c) a semiconductor memory device for storing registered fingerprint data;
(d) a processor configured to create fingerprint data from the detected fingerprint pattern, the created fingerprint data for use in performing a fingerprint match determination between the created fingerprint data and the stored registered fingerprint data, wherein said processor is not configured to perform said fingerprint match determination;
(e) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to a fingerprint match determination; and
(f) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, wherein said portable key unit comprises said sensor and said processor but not said semiconductor memory device and not said control unit, and wherein said portable key unit is configured to communicate data corresponding to said created fingerprint data in communication with said semiconductor memory device and said control unit via wireless communication.

18. (canceled)

19. (currently amended) A switching device comprising:

- (a) a starting switch for starting operation of an object;
- (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
- (c) a semiconductor memory device for storing registered fingerprint data;
- (d) a processor configured to (1) determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matched with any of the registered fingerprint data stored in said semiconductor memory device and (2) actuate said starting switch in response to said fingerprint match determination being positive; and

(e) a key unit separated from and independently portable with respect to said starting switch, said portable key unit comprising one selected from the group consisting of: (1) said sensor, said semiconductor memory device, and said processor, and wherein said portable key unit is configured to communicate with said starting switch via unidirectional wireless communication from said portable key unit to said starting switch, ~~(2) said sensor and said processor but not said semiconductor memory device, and wherein said portable key unit is configured to communicate with said semiconductor memory device and said starting switch via wireless communication,~~ ~~(3) said processor but not said sensor and not said semiconductor memory device, and wherein said portable key unit is configured to communicate with said sensor, said semiconductor memory device, and said starting switch via wireless communication,~~ and ~~(2)~~ (4) said sensor and said semiconductor memory device but not said processor, and wherein said portable key unit is configured to communicate with said processor via unidirectional wireless communication from said portable key unit to said processor.

20. (canceled)

21. (currently amended) ~~The switching device of claim 19~~ A switching device comprising:
(a) a starting switch for starting operation of an object, said starting switch being actuatable in response to a positive fingerprint match determination;
(b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
(c) a semiconductor memory device for storing registered fingerprint data;
(d) a processor configured to create fingerprint data from the detected fingerprint pattern, the created fingerprint data for use in performing a fingerprint match determination between the created fingerprint data and the stored registered fingerprint data, wherein said processor is not configured to perform said fingerprint match determination; and
(e) a key unit separated from and independently portable with respect to said starting switch, wherein said portable key unit comprises said sensor and said processor but not said semiconductor memory device, and wherein said portable key unit is

configured to communicate data corresponding to said created fingerprint data ~~with said semiconductor memory device and said starting switch~~ via wireless communication.

22. (currently amended) A switching device comprising:
- (a) a starting switch for starting operation of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;
 - (d) a first processor configured to (1) determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matched with any of the registered fingerprint data stored in said semiconductor memory device and (2) actuate said starting switch in response to said fingerprint match determination being positive;
 - (e) a second processor in communication with said first processor and said semiconductor memory device, said second processor being configured to (1) create fingerprint data from the fingerprint pattern of an authorized person detected by said fingerprint sensor and (2) register said authorized person by storing said created fingerprint data in said semiconductor memory device; and
 - (f) a portable key unit separated from said starting switch and independently portable with respect to said starting switch, said portable key unit comprising either (i) said first processor but not said second processor, wherein said portable key unit is configured to wirelessly communicate with said control unit and said second processor, or (ii) said second processor but not said first processor, wherein said portable key unit is configured to wirelessly communicate with said first processor.
23. (currently amended) A switching device comprising:
- (a) a starting switch for starting operation of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;

(d) a processor configured to (1) determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matched with any of the registered fingerprint data stored in said semiconductor memory device and (2) actuate said starting switch in response to said fingerprint match determination being positive; and

(e) a key unit separated from and independently portable with respect to said starting switch, said portable key unit comprising said sensor, said semiconductor memory device, and said processor, and ~~The switching device of claim 31~~ wherein said portable key unit is configured to wirelessly communicate with said starting switch via magnetic coupling.

24. (previously presented) The switching device of claim 31 wherein said portable key unit is a card.

Claims 25-30: (canceled)

31. (currently amended) The switching device of claim 19 wherein said portable key unit comprises said sensor, said semiconductor memory device, and said processor, and wherein said portable key unit is configured to communicate with said starting switch via unidirectional wireless communication from said portable key unit to said starting switch.

32. (canceled)

33. (canceled)

34. (previously presented) The locking device of claim 11 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.

35. (previously presented) The locking device of claim 11 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value according to said clock signal and identify a time value when a finger is pressed

against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed to lock or unlock movement of said object, and wherein said processor is further configured such that said locking or unlocking of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to lock or unlock movement of said object.

36. (canceled)

37. (canceled)

38. (previously presented) The switching device of claim 19 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.

39. (previously presented) The switching device of claim 19 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value according to said clock signal and identify a time value when a finger is pressed against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed start operation of said object, and wherein said processor is further configured such that said starting operation of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to start operation of said object.

40. (canceled)

41. (canceled)

42. (canceled)

43. (currently amended) The locking device of claim 11 wherein said portable key unit comprises said sensor and said semiconductor memory device, but not said processor and not said control unit, and wherein said portable key unit is in communication with said processor ~~and said control unit~~ via unidirectional wireless communication from said portable key unit to said processor.

44. (currently amended) The switching device of claim 19 wherein said portable key unit comprises said sensor and said semiconductor memory device but not said processor, and wherein said portable key unit is configured to communicate with said processor via unidirectional wireless communication from said portable key unit to said processor.

45. (canceled)

46. (previously presented) The locking device of claim 16 wherein said portable key unit comprises said first processor but not said second processor, wherein said portable key unit is configured to wirelessly communicate with said control unit and said second processor.

47. (previously presented) The locking device of claim 16 wherein said portable key unit comprises said second processor but not said first processor, wherein said portable key unit is configured to wirelessly communicate with said first processor.

48. (previously presented) The switching device of claim 22 wherein said portable key unit comprises said first processor but not said second processor, wherein said portable key unit is configured to wirelessly communicate with said control unit and said second processor.

49. (previously presented) The switching device of claim 22 wherein said portable key unit comprises said second processor but not said first processor, wherein said portable key unit is configured to wirelessly communicate with said first processor.

50. (previously presented) The locking device of claim 12 wherein said portable key unit is configured to wirelessly communicate with said control unit via infrared communication.

51. (currently amended) A locking device comprising:
- (a) a locking mechanism for locking and unlocking movement of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;
 - (d) a processor configured to determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device;
 - (e) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to said fingerprint match determination by said processor; and
 - (f) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, said portable key unit comprising said sensor, said semiconductor memory device, and said processor but not said control unit, and wherein said portable key unit is in communication with said control unit via wireless communication, and ~~The locking device of claim 12~~ wherein said portable key unit is configured to wirelessly communicate with said control unit via electrostatic coupling.
52. (currently amended) ~~The switching device of claim 31~~ 48 wherein said portable key unit is configured to wirelessly communicate with said control unit via infrared communication.
53. (currently amended) A switching device comprising:
- (a) a starting switch for starting operation of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;

(d) a processor configured to (1) determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matched with any of the registered fingerprint data stored in said semiconductor memory device and (2) actuate said starting switch in response to said fingerprint match determination being positive; and

(e) a key unit separated from and independently portable with respect to said starting switch, said portable key unit comprising said sensor, said semiconductor memory device, and said processor, and wherein said portable key unit is configured to communicate with said starting switch via wireless communication, and ~~The switching device of claim 31~~ wherein said portable key unit is configured to wirelessly communicate with said starting switch control unit via electrostatic coupling.

54. (currently amended) A locking device comprising:

(a) a locking mechanism for locking and unlocking movement of an object;

(b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;

(c) a semiconductor memory device for storing registered fingerprint data;

(d) a processor configured to determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device, and ~~The locking device of claim 12~~ wherein the processor is further configured to make a negative fingerprint match determination if said fingerprint data created from the fingerprint pattern detected by said sensor perfectly matches any of said registered fingerprint data;

(e) a control unit for controlling whether said locking mechanism locks or unlocks movement of said object in response to said fingerprint match determination by said processor; and

(f) a key unit separated from said locking mechanism and independently portable with respect to said control unit and said locking mechanism, said portable key unit comprising said sensor, said semiconductor memory device, and said processor but not

said control unit, and wherein said portable key unit is in communication with said control unit via wireless communication.

55. (currently amended) A switching device comprising:
- (a) a starting switch for starting operation of an object;
 - (b) a pressure-based fingerprint sensor for detecting a fingerprint pattern comprising at least a portion of a plurality of ridges and a plurality of valleys of a finger in both an x-direction and a y-direction when said finger is pressed against said sensor;
 - (c) a semiconductor memory device for storing registered fingerprint data;
 - (d) a processor configured to (1) determine by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matched with any of the registered fingerprint data stored in said semiconductor memory device and (2) actuate said starting switch in response to said fingerprint match determination being positive, and ~~The switching device of claim 31~~ wherein the processor is further configured to make a negative fingerprint match determination if said fingerprint data created from the fingerprint pattern detected by said sensor perfectly matches any of said registered fingerprint data; and
 - (e) a key unit separated from and independently portable with respect to said starting switch, said portable key unit comprising said sensor, said semiconductor memory device, and said processor, and wherein said portable key unit is configured to communicate with said starting switch via wireless communication.
56. (previously presented) The locking device of claim 12 wherein the portable key unit comprises a plurality of said processors.
57. (previously presented) The switching device of claim 31 wherein the portable key unit comprises a plurality of said processors.
58. (new) The locking device of claim 16 wherein said portable key unit is a card.
59. (new) The locking device of claim 13 wherein said wireless communication is unidirectional from said portable key unit to said control unit.

60. (new) The locking device of claim 17 wherein said wireless data communication is unidirectional wireless communication from said portable key unit.
61. (new) The switching device of claim 21 wherein said wireless data communication is unidirectional wireless communication from said portable key unit.
62. (new) The switching device of claim 22 wherein said portable key unit is a card.
63. (new) The switching device of claim 23 wherein said wireless communication is unidirectional from said portable key unit to said starting switch.
64. (new) The starting switch of claim 31 wherein said portable key unit is in unidirectional wireless communication with said starting switch via infrared communication.
65. (new) The locking device of claim 43 wherein said portable key unit is in unidirectional wireless communication with said processor via infrared communication.
66. (new) The locking device of claim 43 wherein said portable key unit is in unidirectional wireless communication with said processor via magnetic coupling.
67. (new) The locking device of claim 43 wherein said portable key unit is in unidirectional wireless communication with said processor via electrostatic coupling.
68. (new) The switching device of claim 44 wherein said portable key unit is in unidirectional wireless communication with said processor via infrared communication.
69. (new) The switching device of claim 44 wherein said portable key unit is in unidirectional wireless communication with said processor via magnetic coupling.
70. (new) The switching device of claim 44 wherein said portable key unit is in unidirectional wireless communication with said processor via electrostatic coupling.

71. (new) The locking device of claim 47 wherein said portable key unit is configured to wirelessly communicate with said control unit via infrared communication.
72. (new) The switching device of claim 49 wherein said portable key unit is configured to wirelessly communicate with said control unit via infrared communication.
73. (new) The locking device of claim 51 wherein said wireless communication is unidirectional from said portable key unit to said control unit.
74. (new) The locking device of claim 51 wherein said portable key unit is a card.
75. (new) The locking device of claim 51 wherein the portable key unit comprises a plurality of said processors.
76. (new) The locking device of claim 51 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.
77. (new) The locking device of claim 51 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value according to said clock signal and identify a time value when a finger is pressed against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed to lock or unlock movement of said object, and wherein said processor is further configured such that said locking or unlocking of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to lock or unlock movement of said object.
78. (new) The switching device of claim 53 wherein said wireless communication is unidirectional from said portable key unit to said starting switch.

79. (new) The switching device of claim 53 wherein said portable key unit is a card.
80. (new) The switching device of claim 53 wherein the portable key unit comprises a plurality of said processors.
81. (new) The switching device of claim 53 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.
82. (new) The switching device of claim 53 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value according to said clock signal and identify a time value when a finger is pressed against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed start operation of said object, and wherein said processor is further configured such that said starting operation of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to start operation of said object.
83. (new) The locking device of claim 54 wherein said portable key unit is a card.
84. (new) The locking device of claim 54 wherein the portable key unit comprises a plurality of said processors.
85. (new) The locking device of claim 54 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.
86. (new) The locking device of claim 54 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value

according to said clock signal and identify a time value when a finger is pressed against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed to lock or unlock movement of said object, and wherein said processor is further configured such that said locking or unlocking of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to lock or unlock movement of said object.

87. (new) The switching device of claim 55 wherein said portable key unit is a card.

88. (new) The switching device of claim 55 wherein the portable key unit comprises a plurality of said processors.

89. (new) The switching device of claim 55 wherein said processor is further configured to store said sensed fingerprint pattern in said semiconductor memory device in response to said fingerprint match determination being negative.

90. (new) The switching device of claim 55 further comprising a clock unit for generating a periodic clock signal and a time determining unit configured to maintain a time value according to said clock signal and identify a time value when a finger is pressed against said sensor, wherein said semiconductor memory device is further configured to store access control data, said access control data identifying when an authorized person for whom registered fingerprint data is stored is allowed start operation of said object, and wherein said processor is further configured such that said starting operation of said object is further dependent upon said processor positively determining from a comparison between said access control data and said identified time value that said authorized person is allowed to start operation of said object.